980/3

umta abstract

URBAN MASS TRANSPORTATION ADMINISTRATION

Date May-June 1980

Dear Subscriber:

The reports contained in this Bi-Monthly Abstract are organized according to seventeen subject classification areas, as were the reports in the earlier Bi-Monthly Abstracts this year (January-February 1980 and March-April 1980).

This semi-annual edition also contains a Retrieval Term Index which indexes by subject the reports in this issue as well as those in the earlier issues. The Index directs the user to the appropriate Abstract pages, which are now in numerical sequence, and began with the January-February 1980 issue.

A cumulative Retrieval Term Index will appear at the end of every third issue of future Bi-Monthly Abstracts.

Sincerely,

Donald M. Chapman
Chief, Information Services Division
Office of Transportation Management

NEWARK PUBLIC LIBRARY

NOV 10 1980

U. S. GOVT. PUBS.
DEPOSITORY 376

TD 7.10/2:

UMTA ABSTRACTS SUBJECT CLASSIFICATION

01. Conventional Transportation Services

02. Center City/Traffic Restraints

03. Energy and Environment

04. Fares/Pricing and Service Innovations

05. Financing

06. Land Use

07. Non-Urban and Low-Density Area Transportation

08. Paratransit Systems and Services

09. Planning, Policy and Program Development

10. Political Processes and Legal Affairs

11. Safety/Product Qualification and Security

12. Socioeconomics

13. Technology Development and Deployment

    A. Bus and Paratransit Vehicle Technology
    B. Bus and Paratransit Operational Technology
    C. New Systems and Automation
    D. Rapid Rail Vehicles and Systems
    E. Commuter Rail Vehicles and Systems
    F. Light Rail Vehicles and Systems
    G. Construction/Tunneling Technology

14. Transportation of Disadvantaged/Special-User Groups

15. Transportation/Transit Management

16. Transportation Productivity and Efficiency

17. Urban Goods Movement

best copy available

Allocating Funds Under the California Transportation Development Act. Interim Report.

Conant, J. D. and J. McDonnell. California Department of Transportation, Division of Mass Transportation. UMTA-CA-09-8003-80-1, November 1979, 74p.

The Transportation Development Act (TDA) establishes a local transportation fund from sales tax money returned to the county of source. The fund is controlled by the designating Regional Transportation Planning Agency (RTPA) which determines the accounts "off the top" expenses as well as amounts designated for public transportation service. These RTPAs are established throughout the State and can be councils of government, local transportation commissions, or statutorily created multi-county commissions. This report deals with an analysis of the fund distribution process under the California TDA. The report discusses an analysis of the fund flow process to the RTPAs, lists the State suballocation requirements in greater detail, and contains a survey report on regional suballocation of TDA monies to transit properties. The purpose of this study is to show how transit money is distributed in California, particularly as related to transit performance, what was intended by the legislation, and what were some of the results to date. This report comprises a major section of the research study entitled: "Analysis of Transit Performance Measures (TPMs) as Mechanisms for the Allocation of State Aid to Transit Properties".

NTIS No. PB 80-150121 Price A04

Moving People: The Case for Public Transportation. Final Report.

McKnight, C. and C. Johnson. University of Illinois at Chicago Circle, School of Urban Sciences. UMTA-IL-11-0025-80-1, January 1980, 60p.

While support for public transportation is growing, many people question the large subsidies from Federal and local taxes that have been necessary to maintain and expand transportion systems. This report is a Handbook on public transportation for the general public. The issues that it covers include: transportation planning; transportation costs and financing; user benefits of public transportation; social benefits of public transportation; public perceptions of public transportation; and marketing of public transportation. The purpose of this Handbook is to explain how public transportation is planned, how the individual citizen can make his views heard, why subsidies are necessary, and finally, what is being done to improve public transportation. These issues are explored in a question and answer format and several case studies are included to illustrate complex issues and explore topics in greater detail.

NTIS No. PB 80-182686 Price A04

The UMTA Rail Modernization Program: Evaluation of the Impacts of Section 3 Capital Grants for Rail Rehabilitation and Modernization. Final Report.

Bennett, J. Peat, Marwick, Mitchell & Co. UMTA-IT-06-0118-80-1, May 1979, 282p.

This report is an evaluation of the Urban Mass Transportation Administration grants for the modernization of existing rail systems. The report contains an inventory of rail modernization projects by type; mode (rapid rail, light rail, and commuter rail); and city. Impacts of these funds are analyzed by examining specific projects, which are: 1) replace/modernize Burlington Northern commuter rail rolling stock in Chicago; 2) improve power system for Port Authority Trans-Hudson Corporation in New York; 3) improve rolling stock, way and structure, and station on the Riverside Branch of the Green Line light rail system in Boston; 4) replace SEPTA ex-Penn Central Division commuter rail rolling stock in Philadelphia; and 5) modernize the stations in New York and

Philadelphia. In addition, an evaluation was conducted of the process undertaken by local transit operators to secure rail modernization funds and to select and implement projects. This evaluation reviewed the process of a recipient of UMTA Section 3 funds (NYCTA) compared with the process of a transit authority whose rail modernization program is currently financed independent of UMTA capital grants (PATH). Findings, conclusions, and recommendations resulting from this evaluation of project impacts; the investigation of the process for identifying, funding, and implementing these projects; and the Phase I study of the overall investment program are discussed in this report.

NTIS No. PB 80-178775 Price A13

06. LAND USE

Joint Development: Making the Real Estate-Transit Connection. Final Report.

The Urban Land Institute. UMTA-DC-06-0183-79-1, June 1979, 345p.

Real estate development that is directly related to the location and operation of public transportation station facilities is termed "joint development" (JD) in the transportation planning field. Successful implementation of real estate projects related to transit facilities (or JD) depends upon the agreements and arrangements made among developers, transit authorities, and other public agencies. The purpose of this report is to inform new and potential participants in JD of the financial, legal, organizational, and operational aspects of the deals involved in the implementation of JD projects. Through case studies, this report reviews the planning and deal-making involved in the execution of seven major projects in five cities in the United States and Canada: Boston; Philadelphia; Washington, D.C.; Montreal; and Toronto. The case studies include reactions from developers and transit authorities and recommendations on improvements to the JD process from transit planning and physical design through construction to the operation of the projects. The Executive Summary (DOT-I-79-13) of this report is also available from NTIS.

NTIS No. PB 80-169683 Price A15

Joint Development Report. Final Report

Rice Center. UMTA-TX-11-0006-80-1, June 1979, 175p.

This report is part of a continuing series of reports on the subject of joint development value capture issued by the Rice Center team. Joint development, as considered in this report, refers to coordinated design and construction of transit, parking, commercial, residential, recreational, and other facilities by public and private sectors. Each sector owns and develops a portion of these facilities independently, but through collaboration in the development process. The term "value capture" as used in this report, refers to a subset of joint development activities wherein the public sector receives direct financial benefit from the private urban development, which has come about in part because of public investment in transportation improvements. This report is a status report of joint development activity in cities across the nation, documenting research conducted between July 1976 and June 1979. This document is in three parts. Part One discusses legal, organizational, and procedural issues which were observed in the case study research documented in Part Two. Part Two is a status report of national joint development activities,

current as of May 1979, and includes seven city summaries and 26 project case studies. Part Three presents brief status sheet reports of 29 projects. This report also contains a public/private process chart which illustrates the steps necessary for joint development and an examination of the Transportation Corridor Development Corporation (TCDC).

NTIS No. PB 80-150139 Price A08

08. PARATRANSIT SYSTEMS AND SERVICES

The Knoxville Tennessee Transportation Brokerage Demonstration: An Evaluation. Final Report.

Juster, R. D., J. A. Kruger, and C. F. Ruprecht.

Multisystems, Inc., under contract to Transportation Systems Center. UMTA-TN-06-0006-80-1, August 1979, 286p.

The Knoxville Tennessee Transportation Brokerage Demonstration was conducted from October 1975 through December 1978. In this first metropolitan, multi-modal implementation of the brokerage concept, an organization known as the Knoxville Commuter Pool (KCP) attempted to identify and match transportation demand and supply across a variety of users and providers, and to effect legal and regulatory reforms conducive to the improvement of transportation services. Primary emphasis during the demonstration was on serving the commuters and social service agencies. A major aspect of the KCP's commuter-oriented activities was the large scale surveying of employees at their worksites and their subsequent computer matching with buses and with other computers having similar travel patterns. KCP purchased 51 vans and leased them to individual commuters as part of an operational vanpool program designed to encourage the growth of a large private vanpool fleet. This report discusses implementation of the vanpool program and its resulting impact on state regulatory law and vanpool insurance. While this experiment in brokerage had great success in its efforts for institutional changes, its overall impact on travel behavior in the Knoxville area was quite limited. However, through the creation of a mechanism for testing new types of coordinated activities, the brokerage concept appears to offer flexibility for better solutions to transportation problems.

NTIS No. PB 80-169337 Price A13

Santa Monica Mountains Recreational Transit Service. Interim Report

Webb, P. Crain and Associates, under contract to Transportation Systems Center. UMTA-CA-06-0130-80-1, February 1980, 148p.

This is a report on first year operations of a weekend subscription transit service to a recreational area outside a major metropolitan area. In this demonstration, the Southern California Rapid Transit District, in conjunction with the Santa Monica Mountains Comprehensive Planning Commission, tested the feasibility of providing a seasonal recreational transit service from inner city areas of Los Angeles to Malibu Creek State Park and Tapia County Park located in the Santa Monica Mountains 35 miles west of downtown Los Angeles. The service offered access to outdoor recreational opportunities for a large portion of the region's population who are heavily dependent on public transportation. Low cost, guided trips were provided for groups to the two mountain parks in what will soon become a National Recreation Area northwest of the city. The project was intended to measure the demand for such a service and to demonstrate its

economic and operational feasibility. This report contains the following elements: an overview of the objectives, innovations, and key evaluation issues for the demonstration; a site description; an accounting of development and operational aspects of the service; results of the evaluation; and a description of the potential for future service in both Los Angeles and other settings.

NTIS No. PB 80-183056 Price A07

09. PLANNING, POLICY AND PROGRAM DEVELOPMENT

Abstracts for University Research Projects Supplement. Bibliography.

Urban Mass Transportation Administration, University Research and Training Program. UMTA-UPP-30-79-1, December 1979, 80p.

This reference document serves as a guide to 47 research reports generated between February 1978 and December 1979 by UMTA's University Research and Training Grant Program, and is a supplement to the February 1978 edition (PB 278-646). The Grant Program was initiated in 1970 with award of the first grants that were authorized by Section 11 of the Urban Mass Transportation Act of 1964, as amended. The Act reflects UMTA's continuing commitment to the dissemination of information to government, state and local planning bodies, private industry, and the general public. The purpose of this document is to provide a listing of abstracts published since February 1978 for research projects. The reports abstracted in this document are divided into subject categories arranged alphabetically.

NTIS No. PB 80-148547 Price A05

Logit Analysis of Rapid Transit Access Choices. Final Report.

Korf, J. L., M. J. Demetsky, and L. A. Hoel, University of Virginia, School of Engineering and Applied Science. UMTA-VA-11-0005-80-2, June 1979, 173p.

This research study examines the suitability of applying the program ULOGIT of the UTPS Package of Urban Transportation Planning Programs to forecast rapid transit access mode choices, or, application of the logit modeling methodology to develop rapid transit access mode choice models which are transferable among different stations in a system. Available data from the Parkham Express bus service in Richmond, Virginia, the Bay Area Rapid Transit (BART) system, and the Lindenwold Line are used. These data are evaluated so as to provide the needed information for modeling access mode choices, and a survey procedure is designed to obtain complete descriptive information for access mode choice analysis in the future. Strategies and issues associated with logit modeling of submodal choices are examined and a specific modeling approach for this study is selected. This research provides a systematic methodology for analyzing and predicting rapid transit access mode travel behavior.

NTIS No. PB 80-159411 Price A08

Logit Analysis of Rapid Transit Access Choices. Executive Summary. Final Report.

Korf, J. L., M. J. Demetsky, and L. A. Hoel. University of Virginia, School of Engineering and Applied Science. UMTA-VA-11-0005-80-1, June 1979, 8p.

This Executive Summary of the final report presents an overview of the research study that examined the suitability of applying the program ULOGIT of the UTPS Package of Urban Transportation Planning Programs to forecast rapid transit access mode choices. This research provides a systematic methodology for analyzing and predicting rapid transit access mode travel behavior. In addition to model development, this study identifies and clarifies important practical

considerations and issues associated with logit models of rapid transit access mode. The results of this study show that the models for classified station groups have coefficients that differ from each other, and from a model calibrated with data for all stations in a group. It is recommended that future analyses of rapid transit access mode choices should be coordinated by UMTA so that a standard procedure is followed to substantiate general conclusions on intersystem and interstation behavior.

NTIS No. PB 80-159403 Price A02

11. SAFETY/PRODUCT QUALIFICATION AND DEPLOYMENT

Passenger Safety and Convenience Services in Automated Guideway Transit. Volume I: Data Collection, Scenarios, and Evaluation. Final Report.

Dauber, R. L. Vought Corporation, under contract to Transportation Systems Center. UMTA-MA-06-0048-79-4, December 1979, 83p.

The objective of one segment of UMTA's Automated Guideway Transit Technology (AGTT) program, the Systems Safety and Passenger Security (SS&PS) study, is the development of guidelines for the assurance of actual and perceived passenger safety and security in Automated Guideway Transit (AGT) systems. Because AGT systems are essentially unmanned, the possibility exists that passenger problems may go undetected for long periods of time. In conventional transit operations, vehicle operators and station attendents have been assigned secondary roles connected with Passenger Safety and Convenience Services (PS&CS). These same services must be provided on AGT in order to establish passenger acceptance of an unmanned environment and to ensure their safety, comfort, and well being. This report provides information relating to accomodating PS&CS for AGT services. Its intent is not to provide specific guidelines for handling routine passenger services and safety measures. The report discusses: literature and personal interview findings documenting methods and procedures for detecting and resolving PS&CS problems in current transit operations; scenarios depicting potential PS&CS problems applicable to AGT systems; selection of methods and procedures from current practices for detecting and resolving PS&CS problems in AGT; analysis and evaluation of the effectiveness of selected candidate methods and procedures; and recommended methods and procedures for accomodating PS&CS problems in AGT.

NTIS NO. PB 80-167059 PRICE A05

Passenger Safety and Convenience Services in Automated Guideway Transit. Volume II: Guidebook. Final Report.

Dauber, R. L. Vought Corporation, under contract to Transportation Systems Center. UMTA-MA-06-0048-79-5, December 1979, 133p.

In order to achieve the goal of providing Passenger Safety and Convenience Services (PS&CS) in Automated Guideway Transit (AGT) systems, current practices have been reviewed, analyzed, and evaluated for their effectiveness in accomodating these problems in AGT. The practices for providing PS&CS in both conventional and AGT have been assessed as applicable to highly automated transit systems. These guidelines have been developed suggesting methods and procedures to provide these services for AGT systems. The final objective of this guidebook is to provide the most effective methods and procedures for

ensuring passenger safety and convenience services in AGT systems. Its contents provide guidance for AGT system planners, designers, operators, and evaluators in identifying potential problems and assessing proposed methods and procedures.
NTIS No. PB 80-167067 Price A07

12. SOCIOECONOMICS

AGT Aesthetics: A Handbook for Planning & Design of Automated Guideway Transit (AGT) Systems.

Skidmore, Owings and Merrill/Boston, under contract to Cambridge Systematics, Inc. UMTA-IT-06-0165-79-2, February 1980, 114p.

The Urban Mass Transportation Administration (UMTA) is currently engaged in an Automated Guideway Transit (AGT) Socio-Economic Research Program that is designed to comprehensively examine issues associated with the future development and operation of AGT systems. As one part of this research program, UMTA is considering the aesthetic implications of building these systems, and has commissioned this Handbook and sponsored an Aesthetic Workshop, both of which are aimed at identifying potential aesthetic problems and their solutions. By drawing on design experience gained throughout the country on numerous existing and proposed AGT systems, as well as the general literature dealing with aesthetic issues, this Handbook can help assure that proper consideration is given to design issues. The Handbook is designed primarily to provide guidance to architects, engineers, and planners who are concerned with aesthetic problems posed by elevated AGT systems. This Handbook does not provide detailed design standards and criteria to resolve final architectural engineering design issues. However, it will be useful during those later stages of the design process as a reminder of basic aesthetic issues which must be dealt with in the development of an AGT system.
NTIS No. PB 80-173594 Price A06

13. TECHNOLOGY DEVELOPMENT AND DEPLOYMENT

Proceedings of the Third UMTA R&D Priorities Conference, Cambridge, Massachusetts, November 1978. Volume I: Proceedings of General Sessions and Summarized Reports of Workshops.

American Public Transit Association. UMTA-DC-06-0157-79-1, November 1978, 71p.

This is a compilation of material that was presented at the Third Urban Mass Transportation Administration Research and Development Priorities Conference. It contains proceedings of the General Sessions and summarized reports of the eight Workshop Sessions as well as a listing of conference participants. Detailed proceedings of the Workshop Sessions may be found in Volumes II through IX, which consist of eight separately titled volumes: Volume II: Bus and Paratransit Technology Workshops (PB 300-987); Volume III: AGT and Advanced Systems Workshops (PB 300-988); Volume IV: Service and Methods Demonstrations Workshops (PB 300-989); Volume V: UMTA Special Technology

Programs Workshops (PB 300-990); Volume VI: Rail and Construction Technology Workshops (PB 300-991); Volume VII: Transit Management Workshops (PB 300-992); Volume VIII: Access for Elderly and Handicapped Persons Workshops (PB 300-993); and Volume IX: Urban Transportation Planning Workshops (PB 300-994).

NTIS No. PB 80-161532 Price A04

13C. NEW SYSTEMS AND AUTOMATION

Accelerating Walkway System Analysis at Washington National Airport.

Chung, Cady C. The MITRE Corporation, Metrek Division. UMTA-VA-06-0041-79-3, June 1979, 79p.

An Accelerating Walkway System (AWS) is a high cpacity, continuously available mode of public transportion that has the potential of filling the service gap between walking or conventional moving walkways and conventional vehicular transit systems. This study examines the site and passenger demand characteristics at the Washington National Airport and analyzes the physical, service, and economic feasibility of using an AWS to provide a pedestrian connection service between the Metro Rapid Rail Station and the air terminal. An economic feasibility of the AWS was performed that included investigation of the capital cost, operating and maintenance cost, and life cycle cost of five different AWS manufacturers, which are Dunlop, APL, Dean Research, TRAX, and Boeing. This report contains numerous charts illustrating the airport facilities, passenger demand, and the various costs associated with the AWS. Related reports are: "Accelerating Moving Walkway Systems: Market, Attributes and Benefits - Report D" (PB 287-083); "Accelerating Walkway System Times Square-Grand Central Station Analysis" (PB 80-181795); and "Accelerating Moving Walkway Systems: Executive Summary" (PB 290-682)

NTIS No. PB 80-183841 Price A05

Accelerating Walkway System Times Square-Grand Central Station Analysis. Final Report.

Chung, Cady C. The MITRE Corporation, Metrek Division. UMTA-VA-06-0041-78-3, December 1978, 40p.

The purpose of this Times Square-Grand Central Station case study is to analyze and determine the economic feasibility of an Accelerating Walkway System (AWS) in an urban application with a high-passenger demand. It is not the intention of this study to examine the feasibility of replacing the existing rail shuttle with an AWS. The two types of AWSs analyzed were a one-directional reversible linear and a two-directional loop. The study showed that the systems analyzed are capable of carrying the existing high-passenger demand of approximately 6,500 per peak hour and 90,000 per day, and of providing a good level of service. The level of service in terms of total travel time provided by the 732-meter AWS will be similar to that of the existing shuttle system during peak hours and better during off-peak hours. The report points out that a major advantage of the AWS is that it is continuously available and the waiting time is minimized. Total capital and Operating and Maintenance (O&M) costs, total cost per passenger, and total cost per place provided for the potential AWS are summarized in the report.

NTIS No. PB 80-181795 Price A03

AIRTRANS Urban Technology Program, Phase II. Volume 1: Control System Improvements. Final Report.

Beberstein, J. N., J. E. Robison, et al. Vought Corporation. UMTA-TX-06-0020-79-2, October 1979, 63p.

AIRTRANS, an Automated Guideway Transit (AGT) system built by the Vought Corporation, has provided transit service for passengers at the Dallas/Fort Worth Airport since January 1974. This successful deployment of AGT technology prompted the investigation of the extension of the technology. Independent assessments were made by the Transportation Systems Center (TSC) and by Vought to determine what changes or improvements would be required to operate AIRTRANS in an urban application. Volume One describes the control system improvements incorporated in the P40 vehicle and the AIRTRANS supervisory data system software additions for dual block occupancy alarm features and P40 passenger vehicle identity. Under the control system improvements, the objectives have been to continue development of the longitudinal velocity control systems as embodied in a new third generation Vehicle Control and Electronics Unit; implement improved functional design features in the areas of data communications, directional reversability, dual side doors, automatic test and checkout capability, built-in manual control, slip/slide detection, supervisory data system software; and improved entrainment capability. Significant progress in the AIRTRANS control system's area has been demonstrated in simulation, laboratory tests, and guideway evaluation.

NTIS No. PB 80-175193 Price A04

AIRTRANS Urban Technology Program, Phase II. Volume 2: Improved Passenger Communications. Final Report.

Jacobsen, R. S. and C. M. Schultz. Vought Corporation. UMTA-TX-06-0020-79-3, October 1979, 54p.

Volume 2 covers the Improved Passenger Communications Task activities of the Vought Corporation, during Phase II of the AIRTRANS Urban Technology Program (AUTP). The primary objectives of the program were to design, build and demonstrate: 1) an onboard television surveillance system; 2) a programmable audio-announcement unit; 3) a dynamic graphic system; and 4) a time-to-arrival display unit for passenger stations. All of these systems were built and successfully demonstrated as part of the operation of a prototype urban AGT vehicle in the Dallas/Fort Worth AIRTRANS system.

NTIS No. PB 80-175201 Price A04

AIRTRANS Urban Technology Program, Phase II. Volume 3: Vehicle and Wayside Subsystems. Final Report.

Albach, W. C., et al. Vought Corporation. UMTA-TX-06-0020-79-4, October 1979, 123p.

Volume Three describes the results of the vehicle and wayside subsystem task of the AUTP performed under a federal grant from UMTA to the Dallas/Fort Worth Airport Board. Improvements to the AIRTRANS AGT system to achieve reduced maintenance cost, increased reliability, improved energy efficiency, and all-weather capability for urban applications have been evaluated, analyzed, tested and demonstrated to enhance urban suitability. The demonstration was accomplished by fabricating an urban prototype vehicle and placing it in test operation in the AIRTRANS system at the Dallas/Fort Worth Airport. The prototype vehicle improvements were made in the steering, propulsion, power collection, vehicle coupling, pneumatic, air compressor, door actuation, environmental control and suspension subsystems, and in vehicle maintenance

access. System versatility was improved by adding a second set of biparting side doors to permit passenger loadings from either side of the vehicle. In addition to vehicle improvements, simulations have been used to evaluate electrical power system changes and the benefits of operation with three-car consists and higher vehicle speeds.

NTIS No. PB 80-181258 Price A06

AIRTRANS Urban Technology Program, Phase II. Volume 4: Vehicle Fabrication, Tests and Demonstration. Final Report.

Gerald, S. B. Vought Corporation. UMTA-TX-06-0020-79-5, October 1979, 138p.

Volume 4 describes the fabrication, test and demonstration activities of the AUTP. Improvements to the AIRTRANS AGT system in speed, reliability, cost, and all-weather capability for urban applications have been evaluated in AUTP. The primary objective of fabrication was to convert the Phase I test vehicle (T365) into a prototype AGT system suitable for urban application. Vehicle tests were made to evaluate and verify system and subsystem designs. Demonstration and revenue operations were accomplished at the airport. Detailed results of the above activities, conclusions, and implications for urban usage are presented in this report. A separate report of the AUTP program is "Inspect and Repair as Necessary (IRAN) Program" (UMTA-TX-06-0020-79-1).

NTIS NO. PB 80-179062 PRICE A07

AIRTRANS Urban Technology Program, Phase II. Volume 5: Systems Operation. Final Report.

Benjamin, D. E., G. M. Jones, and G. F. Ruprecht. Vought Corporation. UMTA-TX-06-0020-79-6, October 1979, 133p.

Volume 5 describes the systems operation portions of the Phase II AUTP. The objective of this system operation study was to determine the effects of several improvements on AIRTRANS operation. Among the improvements investigated and reported within this report are increased speed, increased system capability, additional bypasses and sidings, additional failure management strategies, and demand mode operation. Much of this analysis was performed using ASIM, which is the AIRTRAN's simulation model. Additional simulation work was performed using Vought's Demand-Responsive Automated Transit Simulation (DRATS) model and the Transportation Systems Center's Discrete Event Simulation Model (DESM). This study has significantly expanded the understanding of the complex interrelations of AIRTRANS and other AGT systems of similar complexity. Several findings are significant and documented in this report.

NTIS No. PB 80-157704 Price A07

AIRTRANS Urban Technology Program, Phase II. Volume 6: Severe Weather. Final Report.

Albach, W. C., R. A. Doores, et al. Vought Corporation. UMTA-TX-06-0020-79-7, October 1979, 170p.

Volume 6 describes the severe weather part of the AUTP. The objective of this task was to identify changes through analysis and test that would allow the AIRTRANS system to be used in urban locales with severe weather environments. These activities included analysis, study, and testing of the vehicle and guideway components and systems which would be exposed to severe weather in urban AGT systems. Many cold and ice tests were performed in the laboratory with components and subsystems installed on test fixtures or on the new vehicle fabricated as a part of the Phase II program. Some items tested satisfactorily, either initially or after changes; others did not. Even though

significant progress has been made toward a severe weather-capable AIRTRANS, more development is recommended.

NTIS No. PB 80-157696 Price A08

AIRTRANS Urban Technology Program: Executive Summary, Phase II. Final Report.

Albach, W. C., et al. Vought Corporation. UMTA-TX-06-0020-79-8, February 1980, 32p.

The AIRTRANS system at the Dallas/Fort Worth Airport, Texas, is representative of Automated Guideway Transit (AGT) as it will likely develop in cities in the United States and around the world. AIRTRANS is composed of 13 single-lane miles of concrete guideway connecting 53 stations in six major terminal and parking areas of the airport. There is a fleet of 68 fully automatic electrically propelled vehicles, 59 of which currently operate over this guideway network. As of December 1979, the system had completed more than 19 million vehicle miles and carried 29 million passengers. The system is operating with a high percentage of availability and degree of passenger acceptance. This report summarizes the AUTP performed under a federal grant from UMTA to the Dallas/Fort Worth Airport Board. Improvements to the AIRTRANS AGT technology in speed, passenger acceptance, cost, reliability, and all-weather capability for urban applications have been made and evaluated during the program.

NTIS No.PB 80-179070 Price A03

AMTV Headway Sensor and Safety Design. Final Report.

Johnston, J. T., M. Nelson, et al. Jet Propulsion Laboratory. UMTA-CA-06-0088-80-1, January 1980, 72p.

Progress on two related aspects of the development of an Automated Mixed Traffic Vehicle (AMTV) is described in this report. The two tasks involve improvements to the headway sensing system, and development of AMTV body design concepts that will minimize the chance of injury to pedestrians or occupants in the unlikely event of a collision. The problem of sensing in turns is explored experimentally and requirements for future turn sensors are discussed. A recommended headway sensor configuration employing multiple source elements in the focal plane of one lens, operating together with a similar detector unit is described. Sensor technology is also explored more generally. Alternative concepts including laser radar, ultrasonic sensing, imaging techniques, and radar are compared to the present proximity sensor approach. This report contains guidelines for front-end body designs. Body design concepts are suggested, and sketches are presented. This report also contains numerous charts illustrating AMTV sensor design, turn and U-turn sensor design, and ultrasonic sensor design, as well as a list of references.

NTIS No. PB 80-179039 Price A04

Assessment of Operational Automated Guideway Systems - AIRTRANS (Phase II). Final Report.

Watt, C. W., D. Elliott, et al. U.S. Department of Transportation, Research and Special Programs Administration and Ministere des Transports, Institut de Recherche des Transports. UMTA-MA-06-0067-79-1, January 1980, 338p.

This assessment was conducted by the Transportation Systems Center, in close collaboration with the Dallas-Fort Worth Regional Airport Board, and with active participation of the French Institut de Recherche des Transport, under a bilateral agreement between the U.S. Department of Transportation and the French government. This study completes the assessment of AIRTRANS, the

automated guideway system located at the Dallas-Fort Worth Airport. The four main areas of coverage are: 1) changes in system configuration including the addition of employee service and the modifications of the failure management and control systems; 2) the availability, reliability, and maintainability history of the system and its components; 3) the operational safety history of the system; and 4) a life cycle cost study of the system. Availability was not defined in the original AIRTRANS specification, and several definitions have been used. The official measure used today shows the system as being over 98 percent available during the 4 1/2 years of its operation. The data analysis gives firm numbers for Mean Times Between Malfunctions (MTBM), counting all events which stopped the system. Data for the six time periods studied showed decreasing delay durations, increasing MTBMs and decreasing maintenance costs. Operational safety has been excellent. Some estimators for capital and O&M costs of new systems similar to AIRTRANS are developed, which should be useful to planners. Systems lessons learned are also addressed in this report.

NTIS No. PB 80-182538 Price A15

Assessment of the Phase I Morgantown People Mover System. Technical Report.

Elms, C., H. Merritt, et al. N. D. Lea and Associates, Inc., in collaboration with SNV Studiengesellschaft Nahverkehr mbH in Hamburg, Germany.

The objectives of this assessment report are: 1) to provide information on the system installation, including engineering and operating data, descriptive information on system performance, economics, public response, and experience with system design, development, and implementation; 2) to evaluate the information in order to assess system and subsystem technical performance, system economics, and overall system performance in meeting transportation requirements; and 3) to report results of the assessment in ways useful for guiding R&D on key problem areas, for planning Automated Guideway Transit (AGT) installation, and for making product improvements in AGT systems. The purpose of this Socio-Economic Research Program is to relate the characteristics of AGT Technology to the needs for improved forms of urban transportation and to determine the social, economic, environmental, and performance factors which affect the usefulness of AGT systems. This assessment describes the installation and operation of Phase I of the Morgantown People Mover System at West Virginia University in Morgantown, West Virginia. A detailed description of the technical subsystems is included as well as a review of performance, reliability, maintainability, and cost. A system implementation history is also provided. Where important, the review of technical subsystems include applicability, modifications, and/or improvements for application in an urban environment.

NTIS No. PB 80-177926 Price A12

Control Law Implementation for Short Headway Vehicle-Follower AGT Systems. Final Report.

Pue, A. J. The Johns Hopkins University, Applied Physics Laboratory. UMTA-MD-06-0038-79-2, October 1979, 181p.

This report examines the implementation of a vehicle-follower control law for short headway Automated Guideway Transit (AGT) systems in terms of required sensor accuracy, controller structure, and data transmission requirements. A non-linear control law designed for these systems provides a baseline to investigate the trade-off involved with implementation at headways of 0.5 and 3.0 s. Sensor accuracy is determined by using a suboptimal Kalman filter design where position and velocity estimates are obtained from noisy position measurements. The rms position noise that allows a controller to maintain the

headway within 2 percent of the nominal value is computed as a function of sample rate and vehicle time constant with worst-case wind disturbance. In this report, controller configurations are recommended for headways of 0.5 and 3.0 s that require an 8 bit uplink word at intervals of 0.1 and 0.5 s, respectively. Accomplishments, recommendations, and areas for further study are also presented.

NTIS No. PB 80-181019 Price A09

Description and Technical Review of the Duke University Automated People/Cargo Transportation System. Final Report.

Theumer, H. A. and C. P. Elms. N. D. Lea and Associates, Inc. UMTA-IT-06-0188-79-2, July 1979, 139p.

This report describes and reviews the installation of the automated people/cargo transportation system at Duke University in Durham, North Carolina. A subsequent report should assess the system after it has been in use for a period of time. The objectives of this study are to: 1) obtain descriptive economic system performance and public response (human factors) information which can be used for planning subsequent AGT system installations; 2) obtain factual engineering and operating data about each AGT system which can be used in planning other AGT systems; and 3) review the design, development, and implementation experiences with each AGT system selected to determine what has been learned and how future urban installations of AGT can be most effectively carried out. This report includes a description of the technical subsystems, as well as the designed operation. Specifications of performance, reliability, and maintainability are reviewed and system development and implementation are summarized. Where important, the review of technical subsystems includes applicability, modifications, and/or improvements for application in an urban environment.

NTIS No. PB 80-159734 Price A07

Description and Technical Review of the Miami International Airport Satellite Transit Shuttle System. Final Report.

Theumer, H. A. and C. P. Elms. N. D. Lea and Associates, Inc. UMTA-IT-06-0188-79-3, September 1979, 115p.

This report describes and reviews the installation of the automated satellite transit shuttle system at Miami International Airport. The system at Miami is presently under construction and targeted for passenger service in the first quarter of 1980. The guideway connects the International Satellite Building with the Main Terminal and will separate passengers who have to pass through Customs and Immigration Service from those who do not. Two 2-vehicle trains can transport up to 16,000 passengers per hour in around-the-clock shuttle service. Although this study has been conducted under the assessments activity of the UMTA AGT New Systems Alternatives Program and because the Miami Airport system is not yet in passenger operation, this report and results is considered to be a preliminary rather than an assessment report. It provides a technical review and an in-depth description of the Miami Airport system in terms of the following: Technical Subsystem Review; System Performance; System Costs; and System Development Process.

NTIS No. PB 80-158892 Price A06

Dual Mode Planning Case Study, Orange County. Volume 1: Executive Summary and Planning Analysis. Final Report.

Costinett, P., W. G. Hansen, and J. O'Doherty. Alan M. Voorhees and Associates, Inc. UMTA-VA-06-0030-80-1, June 1977, 211p.

This volume is one of five which document two separate planning case studies which examine the feasibility of dual mode transit systems in Orange County, California and in Milwaukee, Wisconsin (UMTA-MA-06-0056-80-1 through 80-3). The main objective of this case study was to provide feedback to dual mode system design efforts. This study incorporated a full-fledged technical planning analysis in a real urban area assuming that the required dual mode vehicles and control systems were available. The analysis differed from a conventional planning study, however, in that performance, cost, and demand characteristics are not fixed, but variable. Supply and demand relationships are parameterized so that the impacts of variations in factors, such as access/egress time, guideway speed, headways, fare level, vehicle size, etc., can be determined. A secondary objective of the study was to produce a documented planning methodology in a "how-to" vein which will be transferrable to others. The parametric analysis methodology developed incorporated a simplified demand estimation procedure and a comprehensive cost model for estimating capital, operating, and user time costs in response to incremental parameter variations over user specified ranges. The methodology and results are presented and conclusions are discussed.

NTIS No. PB 80-180516 Price A10

Dual Mode Planning Case Study, Orange County. Volume 2: Methodology. Final Report.

Costinett, P., W. G. Hansen, and J. O'Doherty. Alan M. Voorhees and Associates, Inc. UMTA-VA-06-0030-80-2, June 1977, 381p.

In this report, Volume 2, the methodology and selected results are presented in detail.

NTIS No. PB 80-180524 Price A17

Guidelines for the Maintenance of Downtown People Mover (DPM) Systems. Final Report.

Yen, A. M., F. T. McInerney, and A. E. Hungerbuhler. Technology Research and Analysis Corp. UMTA-VA-06-0055-80-1, July 1979, 95p.

The purpose of this document is to provide Downtown People Mover (DPM) planners with a base whereby they may design their specific systems maintenance program. The DPM Demonstration program is intended to implement completely Automated Transit Systems (AGT) within the cores of major cities. In order to apply AGT maintenance experience to the DPM program, similarities and differences between existing AGT systems and projected DPM systems were investigated, including differences between their equipment and environments. Three AGT systems were considered: the Morgantown People Mover in Morgantown, West Virginia; the Satellite Transit System at Seattle-Tacoma (Sea-Tac) International Airport, and the AIRTRANS system at Dallas-Fort Worth Regional Airport. This report discusses the general maintenance concepts and the applicability of AGT experience to DPMs. It also provides recommended guidelines for the maintenance of DPM systems, as well as summaries of maintenance procedures followed by the three AGT systems that are similar to DPMs in size or environment. The authors state that during start-up of the DPM system, a much higher failure rate than is expected or even tolerable for steady-state operations will be experienced.

NTIS No. PB 80-159361 Price A05

13D. RAPID RAIL VEHICLES AND SYSTEMS

An Investigation of Rail Rapid Transit Carbody Materials. Technical Report.

Morris, R. E., G. Black, and W. Scheirer. The Decision Group. UMTA-IT-06-0175-80-1, March 1980, 143p.

Determination of the behavior of outerskin carbody mterials in transit and passenger inter-city rail service applications is a necessary element of the Rapid Railcar Standardization Program. The specification of structural and outerskin materials for the procurement of new rapid railcars can be an important consideration of transit authorities with demanding operating environments. In the absence of a quantitative basis for carbody material selection, the purchaser has had to rely upon the experience and knowledge of its operating and maintenance personnel and upon information provided by the basic industries. The information contained in this report is intended to assist purchasers of new rapid railcars to determine the degree of compatibility of each carbody material and materials combination with the demands of the purchaser's environment and estimate the relative maintenance costs of owning cars of each carbody material and materials combination.The behavior of the three carbody materials commonly used in the United States, which are aluminum, low alloy high tensile steel, and stainless steel, is examined in this report and compared throughout the range of rapid transit and inter-city passenger rail service applications and operating environments in North America and Europe. Research findings can be summarized as follows: 1) On a discounted present value basis, stainless steel is the preferred material, and while all carbody materials are subject to corrosion and fatigue, the maintenance costs for stainless steel railcars are lower than those for competing materials; 2) Safe cars can be constructed of each of the candidate materials and materials combinations; and 3) Carbody material selection decisions should be made on the basis of the intended service application and operating environment.

NTIS No. PB 80-170970 Price A07

Urban Rapid Rail Vehicle and Systems Program Engineering Test of ACT-1 Vehicle at Transportation Test Center. Final Report.

Boeing Vertol Company, Surface Transportation Systems Department. UMTA-IT-06-0026-79-6, December 1979, 455p.

The objectives of the Advanced Concept Train (ACT-1) Project were to advance the state-of-the-art of rail rapid transit car design and construction and to demonstrate the benefits of advanced technology when applied to rapid transit cars for both existing and future systems. The primary goal was to provide cars that are as comfortable, reliable, safe, and economical as possible, This document contains a description of two ACT vehicles, including major changes incorporated during testing, and the rationale for these changes. The test program is described in detail and results are presented for checkout, adjustment, engineering, and acceptance testing of the ACT vehicles. The test program results in confirmation of significant achievements in vehicle operating efficiency; technology advances in component design and integration; and of considerations for passenger safety, security, and comfort. Additional documents which contain information regarding the Advanced Concept Train are: "ACT-1 Advanced Concept Train Development Program, Phase II: Design, Fabrication, and Functional Test" (UMTA-IT-06-0026-79-5) and "ACT-1 Simulated Demonstration Test Report" (PB 80-155294).

NTIS No. PB 80-155286 Price A20

13G. CONSTRUCTION/TUNNELING TECHNOLOGY

Proceedings Workshop on Tunnel Lining Design, Cambridge, Massachusetts, March 12 & 13, 1979.

Brierly, Gary S., Editor, under contract to Pacific Consultants, with contract administered by Research and Special Projects Administration. UMTA-MA-06-0100-80-2, December 1979, 234p.

This report documents the proceedings of the Workshop on Tunnel Lining Design which was held at the U.S. Department of Transportation's Transportation Systems Center in Cambridge, Massachusetts, on March 12 and 13, 1979. The workshop was sponsored by the Office of Rail and Construction Technology of the Urban Mass Transportation Administration. The workshop provided a forum for the identification and discussion of problems in the design and construction of tunnels centering around six topics: 1) Lining Design; 2) Qualification; 3) Geotechnical Investigations; 4) Observational Approach; 5) Specifications; and 6) Constructibility and Cost Considerations. A position paper on each topic is arranged together with appropriate discussions from the working group members. In addition to background information regarding the planning of this workshop, this report also contains the keynote address, position papers, and names and addresses of subcommittee members, as well as information about the six topics.

NTIS No. PB 80-171366 Price A11

14. TRANSPORTATION OF DISADVANTAGED/SPECIAL-USER GROUPS

The Lift: Special Needs Transportation in Portland, Oregon. Final Report.

Cooper, T. A., Jr., S. Flynn, and P. Bloomfield. Crain and Associates, under contract to Research and Special Programs Administration. UMTA-OR-06-0004-79-1, August 1979, 297p.

The purpose of this UMTA Service and Methods Demonstration was to test a transit operator's ability to provide demand responsive transportation to handicapped and elderly persons and coordinate this service with contracting social service agencies. Project operation and development, costs, impacts, workability, and cost-effectiveness are discussed in this report. The demonstration proved that a transit operator can coordinate with social service agencies to serve their clients and extend coverage to other transportation handicapped persons who did not previously have access to public transportation. In addition, the project had a substantial impact on the travel behavior of regular users and achieved a high penetration of the wheelchair market. However, the Lift operating cost per trip was higher than rates charged by taxis of private-non-profit carriers, and the impact on the total transportation handicapped market of 22,000 persons, was not great. About 6,000 registered, and the majority of registrants did not become regular users because they did not perceive that they needed specialized public transportation. By the time the project ended, the transit operator, Tri-Met, had emerged as the lead special needs transportation agency in Portland, and the Lift

was largely responsible for the agency's leadership role. Significantly, Tri-Met coordination efforts have not yet led to increased efficiency of special needs transportation.

NTIS No. PB 80-177660 Price A13

Planning for the Phase-In of Fixed-Route Accessible Buses. Interim Report No.1: Review of Accessible Transit Services.

Booz, Allen and Hamilton, Inc., Transportation Consulting Division and Synergy Consulting Services. UMTA-IT-09-9010-80-1, January 1980, 287p.

Many transit systems are currently planning to implement accessible buses into their fixed-route operation. This study is being conducted to develop a guidance manual to be used by transit operators and Metropolitan Planning Organizations in planning for the phase-in of fixed-route accessible buses so as to minimize service disruption and maximize mobility benefits. Earlier attempts to satisfy the travel needs of the handicapped centered on specialized transportation services. This document presents a review of the current status of the various planning activities undertaken by the transit systems which are currently operating accessible buses in fixed-route service as well as those which intend to do so in the near future. The six case study systems are: Champaign-Urbana Mass Transit District in Urbana, Illinois; Southern California Rapid Transit District in Los Angeles, California; Milwaukee County Transit System (Milwaukee Transportation Services, Inc.) in Milwaukee, Wisconsin; Bi-State Development Agency in St. Louis, Missouri; Santa Clara County Transit District in San Jose, California; and Washington Metropolitan Area Transit Authority in Washington, D.C.

NTIS No. PB 80-184146 Price A13

15. TRANSPORTATION/TRANSIT MANAGEMENT

Bus Transit Monitoring Study: Interim Report 1, Data Requirements and Collection Techniques.

Flusberg, M., J. Kruger, and J. Curry. Multisystems, Inc. and ATE Management and Service Co., Inc.

In recent years, an interest in revitalizing public transportion has led to an increased awareness of the need to utilize existing resources more efficiently. As a result, the collection of passenger-related transit operations data has received much more attention. Research into the utilization of this data has considerably advanced the state-of-the-art of transit evaluation and has simultaneously, generated considerable controversy regarding its proper role. In many cases, some transit operators have not been able to implement the measures and standards because they have had difficulty in developing a cost-effective system to collect the needed information. The purpose of this study is to develop a comprehensive statistically-based data collection manual that will enable transit operators to collect passenger-related data in a cost-effective manner which maximizes the usefulness of the overall data base. This first interim report presents the results of the first two tasks of the study, which were to identify current data collection techniques and data requirements. These two related tasks were conducted in parallel through three major

activities: 1) a literature review; 2) a review of material collected by the Massachusetts Bay Transportation Authority and the Tidewater Transportation Commission in Norfolk, Virginia; and 3) discussions with 41 transit properties in the United States and Canada.

NTIS No. PB 80-161409 Price A05

Increasing the Productivity of Urban Expressways; Combining TSM Techniques and Transit Improvements. Final Report.

Kain, J. F. and G. R. Fauth. Harvard University, Department of City and Regional Planning. UMTA-MA-11-0031-80-1, October 1979, 95p.

This is the second of a two-part study, which summarizes an analysis of Transportation Systems Management (TSM) and other low capital cost techniques to increase the productivity of urban expressways and streets in dense, built-up areas. Using CORSIM, a variant of the TASSIM land-use transportation model, this analysis examines the benefits and costs of implementing alternative combinations of TSM techniques and transit improvement policies. In Volume I, the costs and benefits of implementing four alternative TSM policies in Boston's central area were estimated. This volume focuses on expressway management policies and transit improvements for Boston's Southeast Corridor. Four TSM techniques: a contra-flow lane for buses; a concurrent-flow lane; ramp metering with bus priority; and automobile tolls, are considered in conjunction with five alternative transit systems offering different combinations of travel times and fares. Of the composite policies tested, expressway ramp metering with an average delay of nine minutes, assuming an improved bus transit system charges $0.7 per mile, is the most feasible cost-effective option. The Executive Summary to this final report is also available from NTIS (PB 80-181076, Price A02).

NTIS No. PB 80-150568 Price A05

Transportation Management Seminar.

The AM&M Consulting Group, Inc. UMTA-VA-09-8004-80-1, Undated, 223p.

This document is is a prototype of a transportation management seminar, which has been prepared and presented by the AM&M Consulting Group, for the Virginia Department of Highways and Transportation. The document covers the introductory lecture, which, in part, comprises the presentation of the discussion moderators of the seminar, introduces the seminar participants, and discusses the concept of the seminar and course curriculum. The report addresses the seminar schedule of topics to be discussed on each of the three days of the seminar, and presents materials to be used within the course.

NTIS No. PB 80-162696 Price A10

Transportation System Management: Prototype Planning Study, Portland. Final Report.

Spanovich,G. Metropolitan Service District (formerly Columbia Region Association of Governments). UMTA-IT-09-0068-79-1, November 1979, 114p.

Transportation System Management (TSM) is a concept that calls for the planning, programming, and implementation of low-capital, short-range improvements designed to increase the efficiency of existing transportation systems. TSM may also serve the goals of energy conservation, environmental protection, and urban revitalization. This report is one of five special studies of the TSM Planning Prototype Studies Program. The program was designed to demonstrate the capabilities of local agencies to undertake TSM planning in a systematic problem oriented manner. The program involved five localities: Portland, Oregon; Dallas/Fort Worth, Texas; Kansas City, Kansas; Seattle, Washington; and Middlesex County, New Jersey. This report documents the

project in Portland and is designed to provide a summary of the procedures utilized in Portland to systematically develop a regionwide program for TSM delineated on a small area basis. The author states that the process described in this report represents a good model for the way in which comprehensive, systematic TSM planning can be carried out. The approach described should be adaptable without major change to other urban areas.

NTIS No. PB 80-181951 Price A06

RETRIEVAL TERM INDEX

Abstracts
36
Accelerating Walkways
1, 39
Accessibility
27, 38, 47, 48
Accidents,
14
ACT-1
26, 29, 46
Advanced Concept Train
26, 29, 46
Advanced Group Rapid Transit
12
Aerobus System
8
Aesthetics
38
AGRT
12
AGT
8, 12-15, 24-26, 37, 38, 40-45
Airport Transportation Systems
1, 24, 39-42, 44
AIRTRANS
24, 40-42, 45
AMTV
1, 42
Articulated Buses
20
ASIM Model
41
Atlanta-Hartsfield International Airport Transportation System
24
Audits
15, 16
Auto Restraints
4, 21
Auto-Use/Disincentives
4
Automated Guideway Transit Systems
8, 12-15, 24-26, 37, 38, 40-45
Automated Mixed Traffic Vehicle
1, 42
Automatic Vehicle Monitoring
25

BART
27, 36
Bay Area Rapid Transit
27, 36
Benefit Cost Analysis
5, 6
Bibliographies
3, 7, 11, 15, 23, 36
Boarding Ramps
14
Boring and Boring Machines
11
Brake Systems
29
Brokerage
4, 30, 35
Bundesgartenschau 1975
8
Bus Design
2, 14, 20
Bus Drivers
31
Bus Lanes
49
Bus Transit
1, 3, 14, 17, 20, 31, 35, 48, 49
Busch Gardens Transportation System
8, 24

Cableway Technology
8, 24
Capital and Operating Costs
24
CAPM
22
Carbody Materials
46
Cargo/People Movers
44
Central Business District
21
Chemical Clock
4
Communications
15, 26
Community Aggregate Planning Model
22

Commuter Pools
7, 35
Commuter Services
7, 33, 35
Computer Programs
7, 9, 10, 22
Computerized Transportation Planning Systems
7, 36, 45
Concrete Technology
10
Conferences
14, 23, 28, 38, 47, 49
Construction
10, 11, 13, 14, 29, 30, 47
Construction Costs
13, 14
Construction Equipment
10, 11
Coordinated Human Services
35, 47
CORSIM Model
49
Cost Models
45
Crashworthiness
14
Crime
23

Dallas/Fort Worth Airport Transportation System
24, 40-42, 45
Damped Wheels
11, 27
DART
17
Delaware Authority for Regional Development
17
Demand-Responsive Automated Transit Simulation Model
41
Demand-Responsive Transportation Systems
9, 10, 17, 47
Demonstrations
2-4, 7, 9-11, 17, 21, 26, 35, 47
DESM
41
Dial-A-Ride
9, 10, 17
Discrete Event Simulation Model
41
Disney World Transportation System
24

Downtown People Movers
12, 43, 45
DRATS Model
41
Dual Mode Transportation System
45
Duke University Transportation System
44

Education and Training
49
Elderly
14, 17, 22, 27, 30, 38, 47
Employees
23, 31
Energy Storage Systems
26
Entrainment
25
ETLS
10
Expressways
49
Extruded Tunnel Lining System
10

Fairland Town Center Transportation System
24
Fares
3-5, 21, 30
Federal Garden Show 1975
8
Federal Government
11, 33
Financing
11, 14, 33
Fixed-Route
4, 48
Fund Allocations
33

Grants
11
Ground Control/Liners
10
Group Rapid Transit
12, 14, 15, 26
GRT
12, 14, 15, 26

Handicapped
14, 17, 22, 27, 30, 38, 47

Indexes
15, 36
INET
7
Information Aids
3, 11, 14, 15, 23
Insurance
14, 31, 35
Integrated Paratransit
5, 6
Integrated Transit Network
7
IRAN
41

Joint Development/Value Capture
34

King's Dominion Transportation System
24
Knoxville Brokerage Project
35

Labor
23
Land Use
16, 34
Life-Cycle Costing
45, 49
Lifts
14, 47
Light Rail Transit
14, 28, 33
LOGIT Model
36
LORAN
25
LRT
14, 28, 33

Maintenance
26
Maintenance Equipment and Facilities
4, 5, 20
Malls
2, 21

Management
15, 16, 21, 23, 48, 49
Management Information Systems
1
Marketing
17
Massachusetts Bay Transportation Authority
48
MBTA
48
Measuring and Measurements
7, 14
Medium-Sized Cities
15, 16
Metrication
7, 15
Miami International Airport Transportation System
24, 44
Modal Choice
36
Models and Modeling
11, 21, 36, 40, 41, 49
Monomotors
26, 29
Morgantown People Mover Transportation System
12, 24, 43, 45
Mueller Aerobus System
8

New York City Transit Authority
33
Noise and Noise Control
11, 17
Nonlinear Control
13
NYCTA
33

Paratransit
3-7, 17, 23, 35
Passenger Safety and Security
23, 37
PATH
33
Pedestrian Malls
21
People/Cargo Movers
44
People Movers
12, 24, 43-45
Performance Measures
1, 12, 48, 49

Personal Rapid Transit
12, 14, 15, 26, 43, 45
Planning
15-17, 22, 38, 45
Platoons
25
Port Authority Trans-Hudson Corporation
33
Propulsion Systems
15, 26, 28, 29
PRT
12, 14, 15, 26, 43, 45

Rail Construction
14
Rail Noise
11, 27
Railcars
14, 46
Ramps
14
Rapid Rail Transit
11, 14, 26, 28, 33, 46
Real Estate
34
Recreational Transit Service
8, 24, 35
Reporting Systems
1
Ridership
1, 21, 48
Ridesharing
7, 35
Risk Management
31
Rock Tunnels
10, 11
Roosevelt Island Tramway Transportation System
24
Routes
7
Run-Cutting
31

Safety
14, 23, 37, 42, 46
Satellite Transportation Systems
24, 44, 45
Schedules and Scheduling
31
Seattle-Tacoma International Airport Transportation System
24, 45

Security
23
Seminars
38, 49
SEPTA
16
Shared-Ride Taxis
4, 9, 10, 30
Shopping Malls
2
Shuttle Loop Transit
8, 14, 15, 26
Simulation Models
41
Sketch Planning
22
SLT
8, 14, 15, 26
Small Cities
15, 16
SOAC
29
Social Service Agency Transportation
22, 30, 47
Socioeconomics
38
Southeastern Pennsylvania Transit Authority
16
Specialized Transportation Services
3, 17, 22
State-of-the-Art Car
29
Subscription Services
17, 35
Subsidies
17, 30, 33
Subway Tunnel Construction
10, 11, 13, 29, 30, 47
Surveys
15-17, 23, 27
Systems Safety
14, 37, 42, 46

Tampa International Airport Transportation System
24
TASSIM Model
49
Taxis
4, 9, 10, 30
Time Ticket
4
Times Square-Grand Central Station
39

Trackways Standardization
28
Traffic Congestion
4, 49
Tramway System
24
Transbus
2
Transit Assistance
11, 14, 33
Transit Malls
2
Transit Performance
1, 12, 15, 16, 48, 49
Transit Properties
1, 4, 11, 14, 16, 17, 20, 27, 33, 48
Transportation Dependent
35
Transportation Disadvantaged
14, 17, 22, 27, 30, 38, 47
Transportation Models
21, 49
Transportation Systems Management
38, 48, 49
Travel Behavior
7
Tunnel Construction Standardization
13
Tunnel Liners
10
Tunnels and Tunneling
10, 11, 13, 29, 30, 38, 47

ULOGIT Model
36
UMI Tourister AGT System
24
UMT Act of 1964, as amended
11
Underground Construction
10, 11, 13, 29, 30, 38, 47
Unions
23
University Research
36
Urban Cable Transportation System
8
Urban Community Values
38
Urban Transportation Planning Systems
7, 22, 36, 45
User Needs
33

User-Side Subsidies
17, 30
UTPS
7, 22, 36, 45

Value Capture
34
Vandalism
23
Vans and Vanpooling
7, 35
Vehicle Design
2, 14
Vehicle-Following
13, 43
Vehicle Longitudinal Control
13-15, 26
Vehicle-Monitoring
25
VLCR
13-15, 26

Washington Metropolitan Area Transit Authority
27, 48
Washington National Airport Transportation System
1, 39
Weathering
41
WEDway People Mover System
24
Wheelchair Lifts
14, 47
Wheel/Rail Noise
11, 27
WMATA
27, 48
Workshops
14, 47

Zones
21

REPORT AVAILABILITY:

Purchase from: The National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161.

Loan copies have been deposited with: U. S. Department of Transportation, The Library, Room 2130, 400 Seventh Street, S.W., Washington, DC 20590; Northwestern University, Transportation Library, Evanston, IL 60201; and Institute of Transportation Studies, The Library, University of California at Berkeley, 412 McLaughlin Hall, Berkeley, CA 94720.

NTIS NORTH AMERICAN PRICE CODES

Issue 6

January 1980

Most NTIS products and services are now announced by price codes and therefore without specific prices in NTIS journals newsletters and indexes

The current dollar equivalent for each code is shown in the schedule below Orders must list the accession number(s) and be accompanied by the total dollar amount from the current schedule

NORTH AMERICAN CONTINENT PRICE SCHEDULE

Customers in Canada, U.S., and Mexico please use this price schedule; other addressees write for Folder PR-360-4.

A01	$3 50	E01	$5 50	T01	110 00
A02	5 00	E02	6 50	T02	125 00
A03	6 00	E03	8 50	T03	210 00
A04	7 00	E04	10 50	T04	300 00
A05	8 00	E05	12 50	T05	360 00
A06	9 00	E06	14 50	T06	420 00
A07	10 00	E07	16 50	T07	480 00
A08	11 00	E08	18 50	T08	540 00
A09	12 00	E09	20 50	T09	600 00
A10	13 00	E10	22 50	T10	660 00
A11	14 00	E11	24 50	T11	720 00
A12	15 00	E12	27 50	T12	780 00
A13	16 00	E13	30 50	T13	840 00
A14	17 00	E14	33 50	T14	900 00
A15	18 00	E15	36 50	T15	960 00
A16	19 00	E16	39 50	T16	1,020 00
A17	20 00	E17	42 50	T17	1,080 00
A18	21 00	E18	45 50	T18	1,140 00
A19	22 00	E19	48 50	T19	1,200 00
A20	23 00	E20	60 50	T99	
A21	24 00	E99			
A22	25 00				
A23	26 00	M01	30 00		
A24	27 00	M02	50 00		
A25	28 00				
A99			*Contact NTIS for price quote		

PRICES EFFECTIVE JANUARY 1, 1980

U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
5285 Port Royal Road
Springfield Virginia 22161

★ U. S. GOVERNMENT PRINTING OFFICE : 1980—341-625/348

U.S. DEPARTMENT OF TRANSPORTATION
URBAN MASS TRANSPORTATION
ADMINISTRATION
Washington, D.C. 20590

Official Business

PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
URBAN MASS TRANSPORTATION
ADMINISTRATION
DOT 511